

## **FINAL MEETING SUMMARY**

### **HANFORD ADVISORY BOARD JOINT BUDGETS AND CONTRACTS/TANK WASTE COMMITTEE MEETING August 4, 2004 Richland, WA**

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*This is only a summary of issues and actions in this meeting. It may not represent the fullness of ideas discussed or opinions given, and should not be used as a substitute for actual public involvement or public comment on any particular topic unless specifically identified as such.*

#### **Welcome and Introductions**

Gerry Pollet, committee chair, welcomed committee members and introductions were made.

#### **Reports on River Protection Project**

Tom Perry and Chris Abraham from the Government Accountability Office (GAO – formerly the General Accounting Office) introduced themselves and provided some information on the recent GAO report on the Waste Treatment Plant (WTP). GAO is an independent entity that works for Congress and responds to their requests for information. The objectives of this report were to identify what the Department of Energy (DOE) accelerated plan is, what the approach for tank waste is, to what extent contracts are implemented, and what challenges remain for unimplemented reforms.

Another report was recently completed by the Army Corps of Engineers, but has not been released to the public yet. A Corps representative, Michael Bart, had called to say the Corps did not feel at liberty to discuss the report since it was prepared at DOE's request. John Eschenberg, DOE-Office of River Protection (DOE-OR), clarified that Congress had required the report, but DOE had paid for it. DOE cannot authorize its distribution until Congress grants permission. The report has twelve key observations, six of which are in the House's Fiscal Energy Budget for next year.

The GAO report describes the situation at Hanford. Since 1989, no waste has been treated for final disposal largely due to the many false starts and failures. Congress was

concerned over how money has been spent. Contract and management reforms have been implemented as a result. In addition, the report reviews the accelerated approach in the context of the WTP. Although the report states the approach is a good effort to think outside of the box, for Hanford, accelerated plan implementation intended to save time and cost has resulted in a lengthening of construction design and cost growth. It became evident the WTP was never designed to treat all the waste by 2028. This has resulted in DOE having to investigate other options, such as expanding capacity.

DOE commented that they found the contract and management part of the GAO report to be fairly positive. Cost reimbursement with incentive was a good step forward, as was contractor accountability. Project management reforms were not yet in place, but since the review, DOE has made more reforms and contingency has increased.

Tom highlighted some other areas of concern related to project management:

- *Fast track design-build-management approach.* According to DOE's guidance, this approach should only be used in limited situations (when the project is well-defined and the technical risks are limited); otherwise, the risk is very high. The WTP does not fit the description in the DOE order. In addition, DOE has been unable to provide an example of a design-build project that did not exceed planned costs and schedules. Problems often exist because construction begins outpacing design. Key technical challenges also arise which lead to assumptions about a technology in the early phases (e.g., use of the pulse jet mixers in tanks) that may not be supported later on. The GAO is also concerned that the WTP commissioning period of testing has been shortened to meet the schedule, leaving less time for resolution of problems that arise.
- *Costs are not being fully evaluated.* DOE has depended on a single supplier of resin and has been slow in testing other resins. This has led to the current tight timeline for testing an alternate resin. GAO is concerned that testing cannot be performed in time.
- *There is no plan in place to deal with legal challenges.* These legal challenges address DOE's authority and could derail the cleanup. DOE should assess what would happen if the worst-case scenario were to occur regarding the legal challenges.
- *There are concerns about DOE's cost-savings methodology.* DOE has stated that they expect to save \$20 billion. GAO feels that this cost saving has been overstated and is misleading. The two point estimates appear to be precise but are inaccurate because present value analysis has not been used. In the present value analysis that GAO performed, the result is only a \$12 billion costs savings, using DOE's assumption that everything goes perfectly as planned.

GAO offered two recommendations. First, DOE should follow its own guidance when acquiring complex nuclear facilities, especially by avoiding a fast track design-build approach. Second, DOE should develop and present to Congress a plan that includes an estimate of the costs and time frames needed to treat and dispose of the majority of tank waste in a geologic repository, should DOE become legally compelled to do so.

John Eschenberg stated they were pleased with the information and the level of scrutiny in the report. DOE does agree with GAO's recommendation that the order be implemented (which they've been doing for two years) but also believes they are doing better than the status quo stated in the report. A number of contract incentive reforms have been implemented linking fees to performance. Design-build is effective when the same contractor is used for both, as in this case. There has been a 33% increase in WTP costs; however, the initial contract was put in place with less than 10% design complete. Most of the escalation in costs resulted from the contractor's due diligence efforts in 2002. Even with the design changes over the last two years, there have not been increases in costs and the project is now 65% designed. John confirmed that DOE's commitment is to meet the milestones set in the Tri-Party Agreement (TPA). The only way to meet those milestones is by doing design-build with proper diligence.

Resin is indeed a risk. Timing is a challenge, however, much of what was learned from testing the first resin can be directly transferred to testing the second. The belief is that the second resin will be qualified for start-up, resulting in short term (as well as long-term) cost savings.

Bulk vitrification is proceeding for an aggressive test. A full-scale bulk melt will be performed in the near future. By January 2005, DOE must provide the regulators with an answer as to whether or not bulk vit will perform. The goal is to have a technically defensible argument by the deadline.

Howard Gnann clarified that, even though the Savannah River and Richland treatment plants were both constructed using a design-build approach, their functions are different. Safety requirements have come into play and the process is currently more thoughtful. John added that a lot more information exists on melter technology now than when the Savannah River plant was built. In Maryland and at Catholic University, there are pilot scale melters that have provided good information.

### **Regulator Perspectives**

- Suzanne Dahl, Ecology, noted that the project start dates have changed while the end dates have not. Milestones govern the WTP construction. Ecology has become supportive of a design-build-permitting approach, even though there is a lot of work to complete. The State's point of view is that the risks associated with leaving the waste in the tanks is greater than the risks associated with the current approach. However, one should note that design packages are not being uniformly accepted. This WTP was never intended to meet 2028, which meant that there was always a

need for a supplemental approach (which could be bulk vit, but that is not yet decided). Research and development on bulk vit is proceeding and will illuminate some of the pitfalls.

The commissioning time was indeed shortened, but to DOE's benefit, cold commissioning was lengthened. Total commissioning time is not sufficient, however, neither Ecology nor DOE would start a facility that was not ready. Demonstration testing is required.

Ecology always appreciates reports from the GAO and the recommendations are not taken lightly. A big concern is what will happen if the "sky falls" on the lawsuit. Some people have read into the judge's ruling that all waste must go to Yucca Mountain, but Ecology understood it to mean that DOE can still separate the low-activity waste, treat it and dispose of it on site.

### **Committee Discussion**

- Harold Heacock pointed out that, for twenty years, the goal was to get a vit plant at Hanford. There have been many false starts; however, there has also been progress. The melter design has been proven. The waste in the tanks has been identified. There is a clear objective for the plant and design is proceeding. For these types of facilities, it would be impossible to complete design before it is built because there will always be changes.
- Gerry asked what happens next when design-build is what is being used, the scope on bulk vitrification is not known so cost savings are difficult to determine, and project management and contract reforms need to be adjusted? Chris stated that GAO cannot offer any other advice than what is in the report. It recommends that DOE follow their own procedures, since so many fast track approach projects have had disastrous results. There have been many opportunities for DOE to analyze design-build, but they have chosen to follow the fast track approach because they want to push forward. The GAO believes this kind of management approach may lead to facility retrofitting that has the potential of increasing project expense in the long term. In addition, there should be some effort in demonstrating the integration of all systems (which the Corps report identified as well) because it is unclear whether the treatment systems will fit together in the end.
- Gerry asked if DOE was in agreement on the issue of the resin and cost savings. John responded that he did agree if they do not develop another resin source, a lot of money would be lost. The timeline is tight but the near-term goal is to get it qualified. Tom clarified that resin is only an example of DOE meeting near-term goals. They have been slow to look into alternative resins even though the last resin took ten years to qualify.

- Sandra Lilligren requested further clarification on the legal issue. If the lawsuit is not settled in DOE's favor and waste cannot be treated differently (i.e., DOE's worst case scenario), the GAO recommends DOE explain to Congress now what that outcome would mean in cost, timeline, etc. Sandra asked if it should be an alternative in the Tank Closure Environmental Impact Statement (EIS) and Ecology responded by noting that it was in the EIS in Alternatives 6a, b and c.
- Keith asked whether a source has been identified for the resin and how that affects cost. John responded that a source has been identified in Utah (a company called IBC), but a spherical resin is being developed that multiple sources could supply. One gallon of resin from IBC costs \$10,000 and, so far, they have been unyielding on the price. If the alternative is not developed in time, a contract will have to be issued to IBC for them to build a manufacturing facility to create the needed resin.
- On the issue of whether the design-build approach is working, Suzanne noted that, even if Ecology received all of the design up front, that would only include conceptual design. The fabricator does the final design. If the whole design had been presented to Ecology two years ago, they would still be reviewing it because of shortage in staff and the need for a variety of experts. Having the pieces come in individually is better for them in some ways.
- Dick Smith questioned the argument for using present value for accounting, since money is available only once a year as an appropriation. Tom clarified that the GAO report is criticizing DOE's methodology for asserting cost savings. If DOE is claiming they are saving \$20 billion, the public will believe that there is an actual savings of \$20 billion, which is misleading. Through present value analysis, a margin of error is established. Howard responded that even GAO's cost savings value is a large enough value to work towards. DOE does have to use escalated rates and can show old baseline and new baseline numbers in the future. A contingency factor can be calculated.
- Tom made a final point: many major items have been resolved, but there are substantial risks in the future tied to the fast-track approach that have not been resolved. At Hanford, every approach has been fast-track and has resulted in slower progress because of the difficulties associated with executing the projects. A lot of money has been spent and progress has not been made.

### **Additional Regulator Perspective on WTP**

Suzanne Dahl informed the committee that two letters had been sent from Ecology to DOE-ORP regarding the WTP. The first was a notice of non-conformance in regards to 0.5" thick wear plates that were taken out of the design in the pulse jet mixers. This letter basically puts DOE-ORP on notice for not "getting it right" and requests corrective action. It is an informal enforcement and Ecology will work with DOE-ORP on the appropriate action. Both Bechtel National, Inc. (BNI) and DOE-ORP do not believe the

wear plates are needed, but they were part of the permitted design. The technical details as to whether they are needed will be worked out.

John agreed this was an example of an area that DOE-ORP could indeed improve. The design packages were completed 18 months ago. In the meantime, the design was revised internally, but not in consultation with Ecology. Suzanne said she would keep the committee informed as to how the issue is resolved.

The second issue revolves around pipes – how they would be designed, what codes would be used, etc. In doing the review, it was Ecology's estimation that DOE-ORP was not following the code in the way it was written. John clarified BNI believes, based on their experience with other projects, stress and corrosion can be calculated differently. The pipe code is challenging, but it is incumbent on DOE-ORP to convince the regulators of the soundness of their approach.

### **Bulk Vitrification Demonstration Project Costs**

Delmar Noyes, DOE-ORP, introduced the bulk vit pilot plant project manager, Dennis Hamilton of CHG. The location to be developed is across Cooper Avenue from the S-tank farm. Pre-fabricated boxes will be brought in and then the 24-foot long boxes will receive a hood with electrodes fixed to it. Once the box is assembled, an air pallet will move the box. Solution from S-tank farm will be pumped into one of three tanks and then the feed will be brought in. Feed will be moved from the mixer dryer and then Hanford dirt will be added to the mixer dryer. (Most likely only the dirt removed for construction will be used). The waste material will be sprayed in and mixed with the soil. Once it reaches 2-10% moisture, it will be pneumatically transferred by vacuum and gravity fed into the box. The waste will be melted in the box. Material will be fed into the box until full. The boxes will remain on site during the research and development permit. Effluents will be transferred to several tanks. During the melting stage, some gases will be produced (mostly nitrous-oxide), but they will go through a scrubber. Liquid effluent would go to the Effluent Treatment Facility (ETF).

Delmar explained that negotiations have been completed and a signed contract is in place. This is a demonstration bulk vit facility and costs have increased; total project cost is now \$102 million. (The original baseline was roughly \$30 million.) Retrieval costs were included in the baseline. Howard commented that DOE-ORP is reviewing what it would cost to build a second or third melter plant. This demo plant may cost a bit more, but the life cycle cost is not far off.

### **Regulator Perspectives**

- Suzanne Dahl stated that the Research, Development and Demonstration (RD&D) permit has been released for public comment. The comment period runs from July 26<sup>th</sup> through September 9<sup>th</sup> and public meeting is scheduled for August 31<sup>st</sup> in Richland. The facility will be held accountable for all requirements but some

variances will be allowed in the parameters. Redundancies will be examined that could create releases and each test plan will have to be approved before they are allowed to proceed.

### **Committee Discussion**

- Keith asked if there was an estimate for a full-scale facility. Howard said it could be \$250 million, but building several smaller facilities is another avenue under consideration; the real driver is the waste that has to go to pre-treatment.. It is still cheaper than running the material through the WTP.
- Paige asked about pre-treatment. Delmar responded they are pre-treating waste two ways: the material can be pumped to two areas and there is a solid/liquid waste separation step that uses cyclonic action, so the salt cake portion would be cycloned out, if it existed. Suzanne commented that iodine is still a concern.
- Delmar noted that the project will take less than two years. (The current schedule shows January 2006 as the date for achieving a negotiated solution on treatment technologies.) New scope has been added for an additional engineering scale test that has increased the cost by \$33 million.
- Maynard asked if the technologies have been compared for worker exposure. Howard responded that the dose level is significantly less for bulk vit than for the WTP.

### **BCC Committee Business**

Both Harold and Gerry have been nominated for committee leadership. EnviroIssues will solicit votes from committee members not present and announce the results next week.

The River and Plateau Committee will be discussing the River Corridor Contract Request for Proposals (RFP) at their August 12 meeting. If committee members have issues or questions regarding the RFP, they can send them to EnviroIssues.

A committee call is planned for August 17<sup>th</sup> at 10:30 am to discuss a September committee meeting agenda. Gerry also suggested that after they hear about the Army Corps of Engineers report, the committee might want to issue advice regarding the issues raised by the GAO.

### **Handouts**

- *Absence of Key Management Reforms on Hanford's Cleanup Project Adds to Challenges of Achieving Cost and Schedule Goals*, U.S. General Accounting Office, June 2004

- *U.S. Government Memorandum Regarding GAO Report*, Roy Schepens, July 15, 2004
- *Questions for the Budgets and Contracts/Tank Waste Committee Meeting*, Questions prepared by committee members with responses from DOE, August 2004
- *Fact Sheet for Dangerous and/or Mixed Waste Research, Development, and Demonstration Permit*, Ecology, July 26, 2004
- *Cost Changes in Supplemental Technology Demonstration Project*, DOE-ORP, July 2004

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### **Attendees**

#### **HAB Members and Alternates**

Harold Heacock	Sandra Lilligren	Wade Riggsbee
Rebecca Holland	Maynard Plahuta	Dick Smith
Paige Knight	Gerry Pollet	Keith Smith

#### **Others**

Steve Chalk, DOE-RL	Melinda Brown, Ecology	John Britton, BNI
John Eschenberg, DOE-ORP	Suzanne Dahl, Ecology	Suzanne Heaston, BNI
Howard Gnann, DOE-ORP		Jim Henschel, BNI
Delmar Noyes, DOE-ORP	Chris Abraham, GAO	John Kristofzski, CHG
	Jeff Larson, GAO	Dennis Hamilton, CHG
	Tom Perry, GAO	Lynn Lefkoff, EnviroIssues
		Marlies Wierenga, EnviroIssues
		Sharon Braswell, Nuvotec/ORP
		Gary Peteasea, TRIDEC
		Dave Watrous
		Monte D. Wilson